

# COHO RESTORATION MID-COLUMBIA R TRIBUTARIES

9604000

## SHORT DESCRIPTION:

Restore the population of naturally spawning coho in the Wenatchee and Methow River basins by transferring adult and/or juvenile coho from appropriate lower river hatcheries to selected habitats or acclimation ponds.

## SPONSOR/CONTRACTOR: YIN

Yakama Indian Nation

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## SUB-CONTRACTORS:

Fulton Ditch Co., Sea Springs, N. Damman, B. Stewart

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## GOALS

### GENERAL:

Supports a healthy Columbia basin, Maintains biological diversity, Maintains genetic integrity, Increases run sizes or populations, Program coordination or planning, Basinwide, Education, Reintroduction

### ANADROMOUS FISH:

Production, O&M, Research, M&E

### NPPC PROGRAM MEASURE:

7.1H;7.4A;7.3B;7.4O.1

### RELATION TO MEASURE:

Through these two measures, the NPPC understands the importance of rebuilding upper river salmon runs which this project is intended to do by reprogramming existing hatchery stocks and facilities. This is a high priority supplementation project as endorsed by both the NPPC and the U.S. v Oregon Policy Committee.

### TARGET STOCK

Coho

### LIFE STAGE

Juveniles/adults

### MGMT CODE (see below)

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### AFFECTED STOCK

Bull trout

Other native salmonids

### BENEFIT OR DETRIMENT

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## BACKGROUND

### Stream name:

all tribs w/in sub-basins

### Subbasin:

Wenatchee, Methow

### ADAPTIVE MANAGEMENT IMPLICATIONS:

By experimenting with releases at different life stages and release locations, more knowledge will be gained about the benefits of acclimation and the rearing of hatchery-influenced fish in more natural environments. This knowledge will help the region to make better decisions about how best to implement supplementation to further rebuilding goals throughout the Columbia River basin.

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## PURPOSE AND METHODS

### SPECIFIC MEASUREABLE OBJECTIVES:

Increase the number of adult coho available for harvest and natural spawning in the Wenatchee and Methow River basins as measured by dam counts at Priest Rapids, Rock Island, Rocky Reach and Wells dams on the Columbia River and by spawning ground surveys.

### CRITICAL UNCERTAINTIES:

The Wenatchee and Methow river basins contain a lot of excellent spawning habitat, and many brushy pools, side channels and "sloughs" for summer rearing and overwintering. This proposal seeks to directly increase the number of coho available to utilize these habitats. However, these basins also have many habitat problems which primarily affect the coho migration corridor. These problems include sedimentation, blocked access to habitat, destruction of pool habitat and riparian cover, inadequate summer discharges and high summer temperatures. Fortunately many programs are already in place to address these problems. Needed habitat improvement efforts include: constructing fences and planting native trees, shrubs, and grasses in riparian areas; conserving water for instream flows; regrading and revegetating stream banks to reduce erosion and sedimentation; creating velocity and hiding cover for juveniles via construction of rock barbs and woody structures; excavating existing or new juvenile rearing alcoves; and researching ways to reduce agricultural pollutants in waters throughout the basin. Additional focus on habitat programs such as these will increase the benefits resulting from this proposal.

### BIOLOGICAL NEED:

Mullan (1984) estimated historical populations of 23,000 to 31,000 annually in the Methow River drainage and 6,000 to 7,000 annually in the Wenatchee River drainage. Primarily due to the construction of dams, unscreened irrigation diversions, general habitat degradation and high exploitation rates, these coho runs have been extirpated with very few if any coho counted at Priest Rapids Dam since 1983. With current habitat restoration measures and reduced ocean harvest on upriver supplemented coho stocks now in place, restoration of coho is more achievable now than a few years back.

### HYPOTHESIS TO BE TESTED:

The hypothesis to be tested is that by bringing in lower river hatchery coho and acclimating them as pre-smolts you will get sufficient adult returns for natural production of the extirpated species. The null hypothesis is that by bringing in lower river hatchery coho you will not get sufficient adult returns to sustain natural production of the extirpated species.

### ALTERNATIVE APPROACHES:

The approaches that were chosen for this project follow the guidelines of the Integrated Hatchery Operation Team (IHOT) policies and procedures and the supplementation guidelines as defined by RASP. If alternatives did not follow this criteria they were not considered.

### METHODS:

Using early stock coho from lower river hatchery facilities, transport available fish in federal, state, or tribal tanker trucks to suitable habitats in the Wenatchee and Methow River basins. Identified acclimation sites in the Methow River include the Winthrop National Fish Hatchery and Fulton Irrigation Canal. Acclimation sites and water use agreements in the Wenatchee River will be identified and developed as part of this proposal. Fish would either be transferred as adults to spawn naturally or spawned and reared at the hatchery to desired life stage prior to transfer. All juveniles resulting from transfers would be marked appropriately prior to outmigration. Adult counting facilities are available at Priest Rapids, Rock Island, Rocky Reach and Wells dams and at the Winthrop National Fish Hatchery. Additional data on health and survival of transferred fish would be collected using techniques such as electroshocking, beach seining, snorkling and spawning ground surveys.

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## PLANNED ACTIVITIES

### SCHEDULE:

<b>Planning Phase</b>	<b>Start</b> 9/96	<b>End</b> 9/00	<b>Subcontractor</b> Sea Springs Co.
<b>Task</b> First, locate and design acclimation sites in Methow; second, Wenatchee; third, other tribs. Develop M/E program.			
<b>Implementation Phase</b>	<b>Start</b> 3/97	<b>End</b> 9/2002	<b>Subcontractor</b>
<b>Task</b> Implement coho restoration program and M/E.			
<b>O&amp;M Phase</b>	<b>Start</b> 1997	<b>End</b> 2015???	<b>Subcontractor</b>
<b>Task</b> Operate and Maintain production facilities, M/E program.			

### PROJECT COMPLETION DATE:

Depends on success of supplementation/restoration program as monitored by M/E.

## **CONSTRAINTS OR FACTORS THAT MAY CAUSE SCHEDULE OR BUDGET CHANGES:**

Since this project is federally funded, it will have to conform to the guidelines of NEPA, BPA environmental analysis department has initially determined that this project qualifies as experimental with regards to supplementation and therefore qualifies for a "categorical exclusion". However, as the project becomes more fully implemented, an Environmental Analysis will be completed. This analysis has already begun in anticipation of its need for completion in the next year or so. For hatchery and acclimation site development, the Yakama Indian Nation has obtained the necessary environmental permits including HPAs, water rights, shoreline development, wetlands, etc. The Yakama Indian Nation has identified more than enough sites for their project that have cooperative landowners. Several of the sites are on land owned by the U.S. Forest Service which is an active and willing participant in this project. In general, there are no foreseen constraints that may cause this project to be delayed.

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## **OUTCOMES, MONITORING AND EVALUATION**

### **SUMMARY OF EXPECTED OUTCOMES**

#### **Expected performance of target population or quality change in land area affected:**

This project is "low tech" with approximately \$1,700,000 required over the first five years to cover transportation, marking, feeding, acclimation, and additional acclimation site investigation. The increase in the population of naturally spawning coho in the Wenatchee and Methow River basins will also depend on the rate at which habitat and passage conditions are improved and also on ocean survival. However, data from the Umatilla and Yakima Rivers in 1994 and 1995 suggest that improved care, placement, and timing in the acclimation and release of juvenile coho can increase the number of returning adults. As habitat and passage improvements "take hold", it is expected that returning coho would eventually be self-sustaining.

#### **Present utilization and conservation potential of target population or area:**

Coho have been extinct from the Mid-Columbia tributaries since the mid 60's. Extinction was due to hydro-power and high ocean harvest. Pristine coho habitat is available in all Mid-Columbia tributaries that historically produced them. This project intends to utilize supplementation technique to seed this available habitat.

#### **Long term expected utilization and conservation potential for target population or habitat:**

Throughout the Mid-Columbia tributaries coho salmon populations and their natural habitat shall be restored to their levels of abundance and productivity sufficient to support sustainable annual harvests by tribal and other fishers.

#### **Contribution toward long-term goal:**

Through hatchery supplementation, the production (as opposed to habitat) part of the equation will be achieved in meeting the overall restoration goal

#### **Indirect biological or environmental changes:**

Increased productivity and salmonid biomass in the Mid-Columbia Tributaries. Increase in watershed nutrient level from spawned out coho carcasses.

#### **Physical products:**

Number of tagged fish will depend on objectives and tasks in M/E program. Tagging of fish will be required to monitor and evaluate the success of the project. Actual number of fish tagged will depend on further refinement of goals and tasks of the M/E program.

#### **Assessment of effects on project outcomes of critical uncertainty:**

With data collection of tagged fish from both juvenile and adult coho, YIN/WDFW will assess the use of out-of-basin (lower river early stock coho) in restoring historic populations to a productive level. Assessment will be based on adult returns and populations productivity.

#### **Information products:**

The data collected will determine the feasibility of using out-of-basin stocks as the broodstock source for coho restoration, the ben

efits of acclimation for coho, and the supplementation value of low cost, low tech facilities in salmonid supplementation activities.

#### **Coordination outcomes:**

Outcomes will be coordinated through meetings with WDFW, USFS and USFWS, Colville Tribe. Results will also be part of the PAC production reports that are developed annually.

#### **MONITORING APPROACH**

Using early stock coho from lower river hatchery facilities, transport available fish in federal, state, or tribal tanker trucks to suitable habitats in the Wenatchee and Methow River basins. Identified acclimation sites in the Methow River include the Winthrop National Fish Hatchery and Fulton Irrigation Canal. Acclimation sites and water use agreements in the Wenatchee River will be identified and developed as part of this proposal. Fish would either be transferred as adults to spawn naturally or spawned and reared at the hatchery to desired life stage prior to transfer. All juveniles resulting from transfers would be marked appropriately prior to outmigration. Adult counting facilities are available at Priest Rapids, Rock Island and Wells dams and at the Winthrop National Fish Hatchery. Additional data on health and survival of transferred fish would be collected using techniques such as beach seining, screw traps, electroshocking and spawning ground surveys.

#### **Provisions to monitor population status or habitat quality:**

Methow Basin Coho

Monitoring and Evaluation Task List

This plan is a working draft. Once a final plan is agreed upon for 1997, it can serve as a base M&E plan for future years, but should be reviewed annually and updated or modified as necessary.

Species of Concern: Summer chinook, and to a lesser extent spring chinook, summer steelhead, and bull trout.

1. Task: Determine the size distribution of the species of concern for the hatchery coho smolt outmigration period.

Strategies: On a weekly basis sample the fish population(s) for range in fork length, mean fork length, and mean weight. Methods include snorkeling and/or beach seining. Potential problems include high flows and inability to collect adequate sample. Crews should try to target as much sampling as feasible at nighttime to increase probability of obtaining a good sample.

Timeframe: April 1 to June 15.

Personnel Need: Three-person crew per day of operation.

2. Task: Determine the size preference range of hatchery coho (predator) on species of concern (prey).

It was determined that data already obtained from prior experiments should suffice.

3. Task: Determine the temporal and spatial distribution within the watershed for each species of concern.

Strategies: Collect data in conjunction with task number 1. Use this data together with existing fish distribution data to describe the distribution for each species of concern within the watershed.

4. Task: Determine the window of vulnerability by hatchery coho on the species of concern.

Strategies: Utilize data from tasks 1-3 to determine temporal/spatial distribution and vulnerable size range overlap of hatchery coho releases and each species of concern.

5. Task: Determine if there is evidence for hatchery coho predation upon the species of concern.

Strategies: Hatchery coho will be collected from river reaches where it is thought maximum overlap exists between the species of concern and hatchery coho. The stomach will be removed and preserved from each hatchery coho, recording where the fish was captured, and its length and weight. In the lab the stomachs will be examined for the presence of fish and identified to species (if possible). A screw trap or traps (a second trap may be installed near Pateros if deemed beneficial) will be placed in areas of known high summer chinook spawning.

Timeframe: April 1 to June 15.

Personnel Need: Two-person crew per day of operation - one trap operating.

Two-person crew per trap per day of operation - two traps operating.

6. Task: Investigate potential interactions between hatchery coho and the species of concern.

Strategies: Collect data in conjunction with task number 1. Snorkel surveys should be conducted at night in different macro habitat types (i.e., pool, riffle, runs, side channels, backwater). Snorkelers will record species associations within each macro habitat type and the relative abundance of each species at each location.

7. Task: Investigate potential competition between hatchery coho and the species of concern.

It was determined that a laboratory-type experiment to collect competition data would not be worthwhile. Some data on competitive interactions will likely be collected as part of task number 6.

8. Task: Determine the smolt-at-release to smolt-at-McNary Dam survival.

Strategies: A recommendation to use PIT tags to collect this data was deemed not worthwhile.

9. Task: Evaluate differences between hatchery coho releases which are volitional and forced.

Strategies: Conduct both volitional and forced releases of coho from Winthrop National Fish Hatchery. Use a seine net to capture and panjet mark coho (each day will have a designated mark) as the fish leave the hatchery. Evaluate fish at screw traps (in conjunction with task 5) for survival, timing, and predation data.

Timeframe: April 1 to May 15.

Personnel Need: Coordinated between Mid-Columbia River Fisheries Resource Office, WDFW, YIN, U.S. Forest Service, Winthrop NFH, Olympia Fish Health Center, and local PUDs.

Supporting documentation: Feasibility of Reintroducing Hatchery Coho Salmon into the Methow River, USFWS.

#### **Data analysis and evaluation:**

Juvenile and adult survival results by CWT interception plus reproductive success by spawning ground surveys. Traps will provide data on levels of risk from predators on the potential success of the project.

#### **Information feed back to management decisions:**

Data and information will be communicated through reports to Tribal/State Coho Policy Group. Reports will also be made available to other co-managers through the Production Advisory Committee under U.S. v. Oregon.

#### **Critical uncertainties affecting project's outcomes:**

This project has the advantage of being located in the Yakima River Basin, the site of a major supplementation research effort under the YKFP. Results from their test and hypothesis will be considered and incorporated as deemed appropriate.

#### **EVALUATION**

Increased early run coho escapement and productivity in the Mid-Columbia tributaries. Improve smolt to smolt survival from acclimation releases as measured at Rocky Reach and Mc Nary Dam. Enhanced upriver early stock coho runs resulting in increased tributary, Zones 1-6, and ocean harvest.

#### **Incorporating new information regarding uncertainties:**

New information will be incorporated through joint meetings with WDFW, USFS, USFWS and YIN. Project results will also be funneled through the U.S. v. Oregon CRFMP via PAC production reports to the U.S. v. Oregon Policy Committee.

#### **Increasing public awareness of F&W activities:**

Through the Fisheries Resource Management's Department of the YIN's public informations specialist Carol Craig. She is respo

nsible for coordinating FRM project development with NPPC, BPA, local interest groups and the media.

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## RELATIONSHIPS

### RELATED BPA PROJECT

Methow habitat projects

5510100

### RELATIONSHIP

Similar contractor

Implements FY97 proposal

### OPPORTUNITIES FOR COOPERATION:

As mentioned, this project is directly related to other projects seeking to improve habitat conditions in the Wenatchee and Methow River basins. Other projects seeking to improve fish passage in the mainstem Columbia River will also impact the results of this proposal. This project is consistent with regional goals identified in the NPPC Fish and Wildlife Program, the U.S. versus Oregon CRFMP, and the NMFS Proposed Recovery Plan. This project will also become an element of the Mid-Columbia Habitat Conservation Plan in which the 3 mid-Columbia PUDs (Grant, Chelan, and Douglas) will have obligations to ensure success of this project at least as it relates to passage at their dams.

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## COSTS AND FTE

**1997 Planned:** \$324,800

### FUTURE FUNDING NEEDS:

<u>FY</u>	<u>\$ NEED</u>	<u>% PLAN</u>	<u>% IMPLEMENT</u>	<u>% O AND M</u>
1998	\$323,000	40%	40%	20%
1999	\$364,000	40%	30%	30%
2000	\$380,800	30%	30%	40%
2001	\$399,840	20%	30%	40%
2002	\$305,000	10%	20%	70%

### PAST OBLIGATIONS (incl. 1997 if done):

<u>FY</u>	<u>OBLIGATED</u>
1996	\$143,472

TOTAL: \$143,472

Note: Data are past obligations, or amounts committed by year, not amounts billed. Does not include data for related projects.

### OTHER NON-FINANCIAL SUPPORTERS:

Colville Tribe, U.S. Forest Service, Washington Department of Fish and Wildlife, U.S. Fish and Wildlife Service.

**LONGER TERM COSTS:** 305,000 most of which should be for O/M of facilities and M/E program.

**1997 OVERHEAD PERCENT:** 26.6% of base

### HOW DOES PERCENTAGE APPLY TO DIRECT COSTS:

Applies to all direct costs.

**SUBCONTRACTOR FTE:** 9